WHAT IS CLAIMED IS:

1. A method for treating abnormal mucosa in an esophagus, said method comprising:

positioning an energy delivery device within the esophagus; and

delivering energy from the device under conditions selected to initiate re-growth of a mucosal layer without substantial injury to a submucosal layer underlying the mucosal layer.

2. A method as in claim 1, wherein the energy is delivered at a total dosage in the range from 1 J/cm^2 to 50 J/cm^2.

3. A method as in claim 2, wherein the total energy dosage is delivered over a time period below 5 seconds.

4. A method as in any of claims 1 to 3, wherein the energy delivery device is positioned in the lower esophagus.

5. A method as in claim 4, wherein the energy delivery device is positioned to deliver energy to the entire circumferential mucosal surface over a length in the range from 1 cm to 15 cm, the mucosal surface located above the lower esophageal sphincter.

6. A method as in claim 4, wherein the abnormal mucosa is metaplastic.

7. A method as in claim 4, wherein the energy is delivered over a circumferential treatment region of the mucosa.

8. A method as in claim 7, wherein the energy is delivered about the entire circumferential treatment region at one time.

9. A method as in claim 7, wherein the energy is delivered sequentially to two or more segments of the circumferential treatment region.

10. A method as in claim 4, wherein the energy is delivered under conditions which substantially necrose the mucosal layer.

11. A method as in claim 4, wherein the energy is delivered under conditions which injure the mucosal layer without substantial necrosis.

12. A method as in claim 4, wherein the energy delivered comprises at least one form of energy selected from the group consisting of radiofrequency energy, thermal energy, microwave energy, ultrasonic energy, infrared and ultraviolet radiation.

13. A method as in claim 12, wherein the energy delivered comprises radiofrequency energy.

14. A method as in claim 13, wherein delivering radiofrequency energy comprises deploying an array of bipolar electrode pairs from the device.

15. A method as in claim 14, wherein the electrodes have a width in the range from 0.1 mm to 3 mm and are spaced apart by a distance in the range from 0.1 mm to 3 mm.

16. A method as in claim 15 wherein the electrode pairs are formed over a dimensionally stable membrane so that interelectrode spacing remains constant as the membrane is deployed.

17. A method as in claim 14, wherein the electrode pairs directly contact the mucosal surface.

18. A method as in claim 14, wherein the electrode pairs are on a side of the membrane which does not directly contact the mucosal surface.

19. A method as in claim 13, wherein delivering the radiofrequency energy comprises attaching one pole of a radiofrequency power supply to the device and another pole to a counter electrode placed on the patient's body remote from the energy delivery device.

20. A method as in claim 13, wherein the device comprises an expandable bladder which is filled with a conductive fluid to deliver the radiofrequency energy through the bladder.

21. A method as in claim 13, wherein the device comprises a monopolar array in or over an expandable structure for delivering the radiofrequency energy.

22. A method as in claim 12, wherein the energy delivered comprises thermal energy.

23. A method as in claim 22, wherein the thermal energy is radiated radially outwardly from a thermal source in the esophageal lumen.

24. A method as in claim 23, wherein radiating thermal energy comprises heating a radiator spaced radially inwardly from the mucosa to a temperature above 1000°C.

25. A method as in claim 24, wherein the radiator is selected from the group consisting of filaments, spherical radiators, cylindrical radiators, and polygonal radiators.

26. A method as in claim 24, wherein the radiator is positioned between two expansible supports.

27. A method as in claim 24, wherein the radiator is positioned in a balloon which is transparent to the radiated energy.

28. A system for treating mucosal tissue in an esophagus, said system comprising:

an elongated member;

an energy delivery structure deployable from the elongated member and adapted to deliver energy to at least a portion of a circumferential section of the mucosal lining of the esophagus; and

means for delivering energy through the delivery structure under conditions selected to initiate regrowth of a mucosal layer without substantial injury to a submucosal layer underlying the mucosal layer.

29. A system as in claim 28, wherein the energy delivery structure comprises an expandable structure deployable from the elongated member.

30. A system as in claim 29, wherein the expandable structure comprises an expandable balloon.

31. A system as in claim 30, wherein the balloon is non-distensible and dimensionally stable.

32. A system as in claim 30, wherein the balloon is elastic.

33. A system as in any of claims 28 to 32, wherein the energy delivery structure further comprises an electrode array.

34. A system as in claim 33, wherein the electrode array comprises bipolar electrode pairs formed over at least a portion of the outer surface of the balloon, wherein the spacing between the electrodes is no more than 3 mm.

35. A system as in claim 34, wherein the electrodes are aligned axially on the balloon.

36. A system as in claim 34, wherein the electrodes are aligned circumferentially over the balloon.

37. A system as in claim 33, wherein the balloon includes electrodes of a common polarity formed over at least a portion of its exterior surface.

38. A system as in claim 33, wherein the balloon includes electrodes of a common polarity formed over at least a portion of its inner surface.

39. A system as in any of claims 30 to 32, wherein the balloon is inflatable with a conductive medium to form a monopolar electrode.

40. A system as in claim 29, wherein the expandable structure comprises a frame deployable from the elongated member and an electrode array formed over at least a portion of the frame.

41. A system as in claim 40, wherein the frame comprises an arcuate surface which carries the electrodes to engage a partial section of the circumference of the esophagus.

42. A system as in claim 41, wherein the frame comprises two oppositely facing arcuate surfaces.

43. A system as in claim 28, wherein the energy delivery structure comprises a heating structure.

44. A system as in claim 43, wherein the heating structure comprises a radiation heat source.

45. A system as in claim 44, wherein the energy delivery structure further comprises a pair of expandable centering elements disposed distally and proximally of the radiation heat source.

46. A system as in any one of claims 43 to 45, wherein the radiation heat source is a filament, spherical radiator, cylindrical radiator, or polygonal radiator.

47. A system as in claim 28 wherein the energy delivery means comprises a photonic source.

48. A system as in claim 28, wherein the energy delivery means comprises a radiofrequency power supply.

49. A system as in claim 48, wherein the radiofrequency power supply is adaptable to deliver an energy dosage in the range from 1 J/cm^2 to 50 J/cm^2 over a time period less than 5 seconds.